



**Energy & Geoscience Institute**  
AT THE UNIVERSITY OF UTAH

## EGI Presentation to Utah - Europe Days

John McLennan  
University of Utah


May 9, 2013

# What is EGI?

- Started 40 Years ago (1972) – First global energy shock
- Worked all 7 continents and >70 countries
- Largest University-based E&P consortia worldwide
- Entered North Africa (1973) and South America (1979)
- First U.S. Institute into Former Soviet Union (1986)
- 30+ years continuous DOE Geothermal Research
- Scientific lead for DOE Regional CO<sub>2</sub> Partnership
- Delivered >\$550 Million in research to sponsors



# More Than 70 Corporate Associates

- 
- Addax
  - Afren Energy
  - Anadarko
  - Apache
  - AWE
  - Bahamas Petroleum
  - Beach Energy
  - ✓ BG Group
  - BHP Billiton
  - ✓ BP
  - Cairn India
  - Casa Exploration
  - CGX Energy
  - Chevron
  - CNOOC
  - Cobalt International
  - ConocoPhillips
  - Dolenex Energy
  - Devon
  - ✓ DNO
  - EnCana
  - EOG Resources
  - ✓ E. ON Ruhrgas
  - ✓ ENEL
  - ✓ ENI
  - Excalibur Ventures
  - ExxonMobil
  - ✓ GDF Suez
  - Hess
  - Hunt Oil
  - INPEX
  - Japex
  - Kosmos Energy
  - Lukoil
  - ✓ Lundin Group
  - Mubadala Petroleum
  - ✓ Maersk Oil
  - Marathon
  - Murphy Oil
  - Newfield
  - Nexen
  - Noble Energy
  - Occidental
  - ONGC
  - Ophir Energy
  - ✓ Orlen Upstream
  - Petrobras
  - PetroChina
  - Petronas
  - Petro-Hunt
  - Plains E&P
  - Questar
  - Reliance
  - ✓ Repsol YPF
  - ✓ RWE Dea
  - Santos
  - Seneca Resources
  - ✓ Shell
  - SK Energy
  - Southwestern
  - ✓ Statoil
  - Suncor
  - Talisman
  - TAQA
  - TNK-BP
  - ✓ Total
  - Tullow
  - ✓ Wintershall
  - Woodside

# 3 Core EGI Research Programs

## Hydrocarbons

**Tight Shale  
Tight Sandstones  
CBM**



**Margins & Rifts**

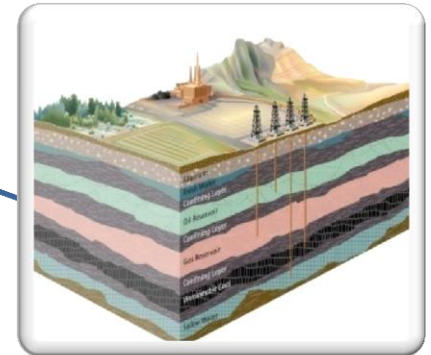
## Geothermal Energy



**Hydrothermal & EGS**

**Research  
Programs**

## Carbon Sequestration




**Saline Aquifers & EOR**



# Ongoing Work

- **Topical:**
  - Shales
- **Regional:**
  - Arctic
  - UK Shales
  - Black Sea
  - Central Eurasia



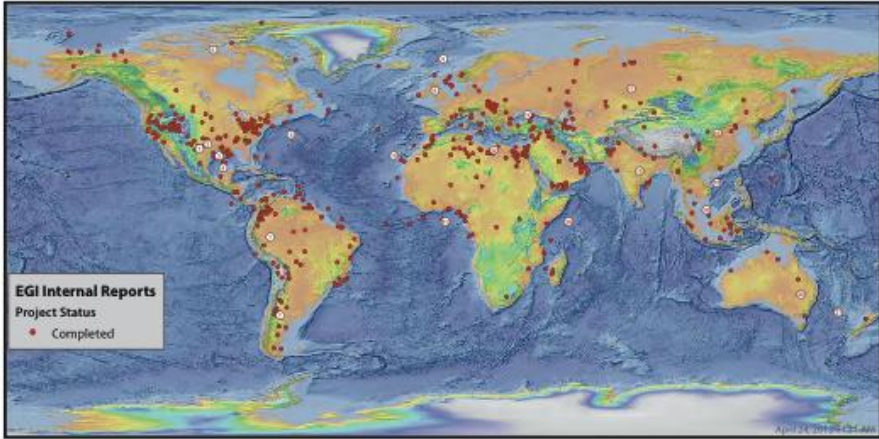
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Research Portfolio

Regional Studies   21 Currently Active	
1(1)	Liquids From Shales, Phase 1
1(2)	Liquids From Shales, Phase 2
2(1)	Shale Gas Production Analysis, Phase 1
2(2)	Shale Gas Production Analysis, Phase 2
3	Paleobathymetry & Depositional Mixing-GOM, Phase 2
4(1)	Deep Water Depositional Systems-GOM, Phase 1
4(2)	Deep Water Depositional Systems-GOM, Phase 2
5	Baffin Bay, Davis Strait and Northern Labrador Sea
6	Central Atlantic Margins, Phase 1
7(1)	South American Shales, Phase 1
7(2)	South American Shales, Phase 2
8	Northern European Arctic
9	UK Shale Gas
10	Northwest African Margins
11	Ghana Margin Basin – West Africa
12	Oil and Gas Fields of Libya – GIS Digital Atlas
13	Circum Black Sea Region Petroleum Systems, Phase 4
14	East Africa – SW Indian Ocean Basins
15	Indian Subcontinent Shale Resource Plays, Phase 1
16(1)	China Shales, Phase 1
16(2)	China Shales, Phase 2
17	Central Eurasia Potential of Shale Liquids and Gas
18	Vietnam to Sumatra Basins
19	South China Sea Basins, Phase 1
20	Australian Shale Gas & Shale Oil Plays
21	Australia and New Zealand Margins Initiative

Topical Studies   7 Currently Active	
22	Shale Gas Systems, Phase 2
23(1)	Paleoecological Database System, Phase 1
23(2)	Paleoecological Database System Resource, Phase 2
24	Low Volume Hydraulic Fracturing for Shales
25	Source Rocks In Space & Through Time
26	Petroleum Systems of Sheared Margins
27	"Rifts and Passive Margins"



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**Completed  
Immediate Delivery**

**Principal Investigator:**  
Michal Nemcik, Ph.D.  
Research Professor

**EMAIL:**  
mnemcik@egi.utah.edu

## Petroleum Systems of the Black Sea Region

Phase 4 of the Circum-Black Sea Project



Cameron R. Shey  
Matej Molcan  
Patricia Eklund

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### New Sponsors Receive:

- Full Report
- On Site Presentation
- Work Flow Integration

**Sponsor Cost**  
\$70k (USD)

**Nancy Taylor, Contracts &  
Assistant Business Manager**  
EMAIL: ntaylor@egi.utah.edu  
PHONE: (801) 585-9137

Project | 00975



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**In Progre**

## UK Shale Gas

### Principal Investigator:

**Prof. Alastair Fraser**  
EGI Chair in Petroleum  
Geoscience, Imperial  
College London

**EMAIL:**  
afraser@egi.utah.edu

**Sponsor Cost**  
\$51k (USD)

**Duration**  
12 months

**Start Date**  
Q2 2013

**Nancy Taylor, Contracts &  
Assistant Business Manager**  
EMAIL: ntaylor@egi.utah.edu  
PHONE: (801) 585-9137

Project | 01023



### Rationale and Significance

- The exploitation of Shale Gas in the U.S. has had a pr impact on gas supply in the U.S., perhaps for the next 10 years
- Europe is now looking to access similar resources
- In the onshore U.K., the organic rich Shales of the Carboniferous of Northern England and Jurassic of Southern England would appear to present technically & economically viable targets
- Recent drilling by Cuadrilla has heightened interest both from industry and media in the Shale Gas potential
- This report will draw on expertise at Imperial College & EGI to generate a review of the potential in the onshore U.K., location, volumes, technology and accessibility.



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**In Development**

**Principal Investigator:**  
**Steve Osborne, M.Sc.**  
Senior Advisor to the  
Director

**EMAIL:**  
sosborne@egi.utah.edu

**Sponsor Cost**  
\$80k (USD)

**Duration**  
16 months

**Start Date**  
Q4 2013

**Nancy Taylor, Contracts &  
Assistant Business Manager**  
EMAIL: ntaylor@egi.utah.edu  
PHONE: (801) 585-9137

Project | 01021



## Central Eurasia Potential of Shale Liquids and Gas

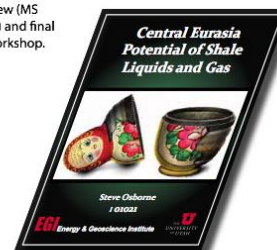
### Project Rationale & Significance:

Evaluate the shale gas/liquids exploration potential in selected Central Eurasian basins with reference to key parameters as determined in analogous basins of North America.

### Deliverables:

Identification of the basins with the greatest potential on the basis of EGI database, public domain data and data provided by sponsors. On selected basins, gather, generate and interpret key data relative to shale gas or liquid prospectivity.

- ArcGIS based reports and PDFs;
- Hard copy and digital summary report;
- Project review (MS PowerPoint) and final meeting/workshop.



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**In Development**

## Northern European Arctic

### Project Rationale and Objectives

- Arctic represents the last frontier for conventional Oil & Gas exploration and may contain up to 1/5th of the worlds yet-to-find resources
- In excess of 200 billion barrels (OE) already discovered –
  - Majority of this in West Siberia & Alaska
  - New access opportunities in West & East Greenland, Norwegian & Russian Barents
  - Independent view of resource potential and oil/gas distribution proposed

**Prof. Alastair Fraser**  
EGI Chair in Petroleum  
Geoscience, Imperial  
College London

**EMAIL:**  
afraser@egi.utah.edu

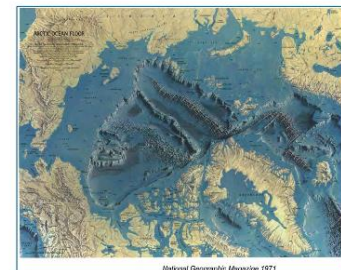
**Sponsor Cost**  
\$100k (USD)

**Duration**  
18 months

**Start Date**  
TBD 2013

**Nancy Taylor, Contracts &  
Assistant Business Manager**  
EMAIL: ntaylor@egi.utah.edu  
PHONE: (801) 585-9137


Project | 01027



National Geographic Magazine 1971

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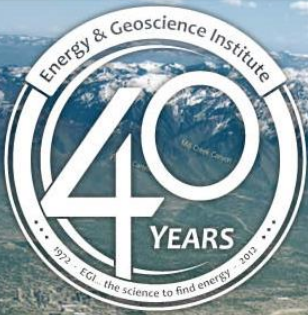
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40 YEARS  
1973 - 2013  
EGI... the science to find energy


## Energy & Geoscience Institute

Are you a member?


The Energy & Geoscience Institute (EGI) at the University of Utah is the world's largest University based industry cost shared upstream research program. Over 100 scientists and dedicated staff are part of EGI in Salt Lake City, Utah, with an additional 100 Affiliate Scientists worldwide.

With over 70 energy corporations across the globe as Corporate Associate Members, EGI has delivered a value of over \$550 million of research across all seven continents for over 40 years.


 [China Shale Gas and Shale Oil Plays-Phase 1](#)

 [East Africa-SW Indian Ocean Basins](#)

 [Shale Gas Production Analysis - Phase 2](#)

 [Paleoecological Database/System Development Phase 2](#)

### Featured Project



[UK Shale Gas](#)


[More Projects](#)

### Technical Competencies

- [Structure and Tectonics](#)
- [3D Visualization & Seismic Interpretation](#)
- [Biostratigraphy, Chrono & Sequence Stratigraphy](#)
- [GIS & Image Analysis](#)
- [Chemostratigraphy](#)
- [Geomechanics](#)

[Learn More](#)

### EGI iPad App

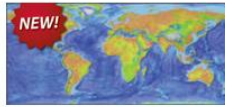


[Events](#)

[EGI's Shale Projects Week](#)  
8-12 Apr. 2013

[Slovakia CA Meeting](#)  
22-25 Apr. 2013

### EGI Database



Exclusive access for Members

- 750+ EGI Project Reports
- 5,500+ Technical Reports
- 4,000+ well logs
- 350,000 km of 2D seismic

www.egi.utah.edu





# Responsible Development

- Reduction in water use
- Optimizing recovery
- Minimizing surface footprint
- Hybrid systems with geothermal
- Developing solutions for small and large companies
- Improved life-cycle scenarios



Water Purification Operations  
Courtesy Les Merrill 212 Resources